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EXAMINER

VERBITSKY, GAIL KAPLAN

ART UNIT PAPER NUMBER

2859

DATE MAILED: 11/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/813,077

Applicant(s)

TANGO ET AL.

Examiner

Gail Verbitsky

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 October 2006.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 17 is/are allowed.
- 6) ☒ Claim(s) 1-20 and 22-26 is/are rejected.
- 7) ☒ Claim(s) 21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5, 7, 9-15, 18-19 are finally rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu et al. (U.S. 20020181965) [hereinafter Shimizu] in view of Hatakeyama (U.S. 6915093) and Yano (U.S. 5606401)

Shimizu discloses in Fig. 1 an image forming apparatus comprising a rotary member 1 capable of carrying an image recording material on its surface, a rotary brush 2-A which contacts (rubs and slides) on the surface of the rotary member 1, wherein, during a pre-process step, so-called preliminary (prescribed) multi-rotation or warming up rotation, the brush 2-A is passively rotated by the member 1 (paragraph [0079]) different from the normal image forming operation (active rotation). This would imply, that the number of the passive rotations is finite, and thus, does not exceed a predetermined/ prescribed number before the first mode is executed. The brush is driven by the member 1 during the passive rotations. A bias current/ voltage is applied to either the brush or to the member 1. There is, inherently, some controlling device/ controller to control the brush rotation.

Claims 4, 7: The brush 2-A is a charging member which charges the member 1 when in a charging position, wherein when in active rotation (image formation/ first mode), the

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peripheral velocity of the rotary brush 2-A is different relative to the member 1 (abstract).

Claim 5: the member 1 is a photosensitive image carrier (page 9, claim 8).

Shimizu teaches a nip C (n) in paragraph [0019].

Shimizu does not explicitly teach the particular amount or push p (pressure) of the rotary brush against the rotary member, as stated in claim 1, and the particular nip n, as stated in claims 1, 9, with the remaining limitations of claims 1-5, 7, 9-15, 18-19.

Hatakeyama discloses a device in the field of applicant's endeavor wherein a charge brush roller 2 is pushed in a rotary photosensitive body (image carrier 1 by push-in amount of 0.2 mm to 2 mm so as to secure a better charging property.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device, disclosed by Shimizu, so as to have the amount of push-in, in the ranges suggested by Hatakeyama, so as to have the push-in and nip amounts corresponding to the diameter of the roller, so as to secure a better charging property.

Yano discloses a device in the field of applicant's endeavor wherein a nip between a charging brush 2 and a member 1 is 2 or 3 mm. Yano states that nip can be increased by increasing a peripheral speed difference.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device, disclosed by Shimizu, so as to have the amount of nip in the range suggested and calculated by Yano, so as to achieve a desired charging amount and desired accuracy of charging, and thus, of an image.

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Also, with respect to the particular amount or push p (pressure/ depth) of the rotary brush against the rotary member, as stated in claim 1, and the particular nip n , as stated in claims 1, 9, absent any criticality, is only considered to be the "optimum" amount/ range of the push and nip used by Shimizu that a person having ordinary skill in the art at the time the invention was made would have been able to determine using routine experimentation based, among other things, on the type of the brush and the required quality, etc. *See In re Boesch, 205 USPQ 215 (CCPA 1980).*

3. Claims 1, 4-5, 8-9, 12-13, 16, 18-19 are finally rejected under 35 U.S.C. 103(a) as being unpatentable over Ishiguro et al. (U.S. 5671476) [hereinafter Ishiguro] in view of Hatakeyama and Yano.

Ishiguro discloses in Fig. 2 an image forming apparatus comprising a photosensitive rotating drum (rotary member) 2, a rotary cleaning brush 54 is rotationally driven by the drum (col. 4, lines 60-65) (passive mode) or rotated by a charge (col. 5, lines 38-65) (active mode). A pressure/ push p and a nip width n are chosen such that the brush only cleans the dust and not the image (col. 4, lines 66-68, col. 5, lines 1-37). The peripheral velocity of the brush is different from the peripheral velocity of the drum during the active/ first mode (cols. 7-8). Cleaning voltage is applied to the cleaning brush. There is, inherently, some controlling device/ controller to control the brush rotation. There is only a specific component 2 makes images, while the other components device do not make images.

Ishiguro does not explicitly teach the particular amount or push **p** (pressure) of the rotary brush against the rotary member, as stated in claim 1, and the particular nip **n**, as stated in claims, and active/ passive rotations.

Hatakeyama discloses a device in the field of applicant's endeavor wherein a charge brush roller 2 is pushed in a rotary photosensitive body (image carrier 1 by push-in amount of 0.2 mm to 2 mm so as to secure a better charging property.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device, disclosed by Ishiguro, so as to have the amount of push-in, in the ranges suggested by Hatakeyama, so as to have the push-in and nip amounts corresponding to the diameter of the roller, so as to secure a better charging property.

Yano discloses a device in the field of applicant's endeavor wherein a nip between a charging brush 2 and a member 1 is 2 or 3 mm. Yano states that nip can be increased by increasing a peripheral speed difference.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device, disclosed by Ishiguro, so as to have the amount of nip in the range suggested and calculated by Yano, so as to achieve a desired charging amount and desired accuracy of charging, and thus, of an image. Also, with respect to the particular amount or push **p** (pressure/ depth) of the rotary brush against the rotary member, as stated in claim 1, and the particular nip **n**, as stated in claims 1, 9, absent any criticality, is only considered to be the "optimum" amount/ range of the push and nip used by Ishiguro that a person having ordinary skill in the art

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at the time the invention was made would have been able to determine using routine experimentation based, among other things, on the type of the brush and the required quality, etc. *See In re Boesch, 205 USPQ 215 (CCPA 1980).*

4. Claims 1, 6, 8-9, 14, 16, 18 are finally rejected under 35 U.S.C. 103(a) as being unpatentable over Shinohara (U.S. 6470154) in view of Hatakeyama and Yano.

Shinohara discloses in Fig. 2 an image forming device comprising an intermediate transfer member (rotary member) 9, a rotary cleaning brush 39 which rubs and slides on a surface of the rotary member wherein, the rotary cleaning brush 39 is being controlled by a motor 41. In addition, the brush 39 is operated during a first/ active mode when it is spaced from the rotary member 9, and during a second (passive) mode when the brush 39 is bearing against the rotary member 9 and rolls with the rotary member (driven by rotary member) 9 (cols. 4-5). There is a mechanism for pushing the brush toward and spacing from the rotary member 9 (col. 5, line 14). This would imply that the mechanism pushes the brush in at some depth (amount of push) *p*. There is, inherently, some controlling device/ controller to control the brush rotation.

Shinohara does not explicitly teach the particular amount or push *p* (pressure) of the rotary brush against the rotary member, as stated in claim 1, and the particular nip *n*, as stated in claims.

Hatakeyama discloses a device in the field of applicant's endeavor wherein a charge brush roller 2 is pushed in a rotary photosensitive body (image carrier 1 by push-in amount of 0.2 mm to 2 mm so as to secure a better charging property.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device, disclosed by Shinohara, so as to have the amount of push-in, in the ranges suggested by Hatakeyama, so as to have the push-in and nip amounts corresponding to the diameter of the roller, so as to secure a better charging property.

Yano discloses a device in the field of applicant's endeavor wherein a nip between a charging brush 2 and a member 1 is 2 or 3 mm. Yano states that nip can be increased by increasing a peripheral speed difference.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device, disclosed by Shinohara, so as to have the amount of nip in the range suggested and calculated by Yano, so as to achieve a desired charging amount and desired accuracy of charging, and thus, of an image.

Also, with respect to the particular amount or push p (pressure/ depth) of the rotary brush against the rotary member, as stated in claim 1, and the particular nip n , as stated in claims 1, 9, absent any criticality, is only considered to be the "optimum" amount/ range of the push and nip used by Shinohara that a person having ordinary skill in the art at the time the invention was made would have been able to determine using routine experimentation based, among other things, on the type of the brush and the required quality, etc. **See *In re Boesch*, 205 USPQ 215 (CCPA 1980).**

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5. Claims 1-3, 5, 8-11, 13, 15-16, 18-19 are finally rejected under 35 U.S.C. 103(a) as being unpatentable over Yasui et al. (U.S. 5845174) [hereinafter Yasui] in view of Hatakeyama and Yano.

Yasui discloses in Fig. 1, 10 an image-forming device comprising a plurality of developing devices 208, a plurality of rotary clean brushes 235 to rub and slide over (clean) a transfer drum/ photosensitive image carrier (rotary member) 202. The device further comprising a controller (CPU) 60 controlling the brushes' rotational operations. Also, Yasui teaches to control nips of the brush to a desired nip size, and a pressure (push p) is controlled by a cam drive circuit 62. The brushes rotate for a first mode/ active rotation/ non-contact and a second mode/ passive rotation/ contact, as described in cols. 6-8. A power supply applies a voltage bias to provide a necessary pressure (push) at least during the contact rotation. There is, inherently, some controlling device/ controller to control the brush rotation. There is only a specific component (photosensitive drum) 202 makes images, while the other components device do not make images.

It is inherent, that the cumulative number of rotations of the rotary brushes in the first mode is executed before the number of rotations of the rotary brushes in the second mode exceeds a prescribed/ desired number of rotations, in order the device to operate properly and according to a desired program.

Yasui does not explicitly teach the particular amount or push p (pressure) of the rotary brush against the rotary member, as stated in claim 1, and the particular nip n, as

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stated in claims 1, 9, and 18. Yasui does not teach that the brushes are charging brushes as stated in claims 7, 15.

Hatakeyama discloses a device in the field of applicant's endeavor wherein a charge brush roller 2 is pushed in a rotary photosensitive body (image carrier 1 by push-in amount of 0.2 mm to 2 mm so as to secure a better charging property.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device, disclosed by Yasui, so as to have the amount of push-in, in the ranges suggested by Hatakeyama, so as to have the push-in and nip amounts corresponding to the diameter of the roller, so as to secure a better charging property.

Yano discloses a device in the field of applicant's endeavor wherein a nip between a charging brush 2 and a member 1 is 2 or 3 mm. Yano states that nip can be increased by increasing a peripheral speed difference.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device, disclosed by Yasui, so as to have the amount of nip in the range suggested and calculated by Yano, so as to achieve a desired charging amount and desired accuracy of charging, and thus, of an image. Also, with respect to the particular amount or push p (pressure/ depth) of the rotary brush against the rotary member, as stated in claim 1, and the particular nip n , as stated in claims 1, 9, 18, absent any criticality, is only considered to be the "optimum" amount/ range of the push and nip used by Yasui that a person having ordinary skill in the art at the time the invention was made would have been able to determine using routine

experimentation based, among other things, on the type of the brush and the required quality, etc. See *In re Boesch*, 205 USPQ 215 (CCPA 1980).

6. Claims 20, 24, 26 are finally rejected under 35 U.S.C. 103(a) as being unpatentable by Yasui et al. (U.S. 5845174) [hereinafter Yasui] in view of Ota (U.S. 20030235419).

Yasui discloses in Fig. 1, 10 an image-forming device comprising a plurality of components each providing a developing device(s) 208, a rotary clean brush(s) 235 to rub and slide over (clean) a photosensitive image drum (rotary member/ image carrier) 206. The device further comprising a controller (CPU) 60 controlling the brushes' rotational operations. Also, Yasui teaches to control nips of the brush to a desired nip size, and a pressure (push p) is controlled by a cam drive circuit 62. The brushes rotate for a first mode/ active rotation/ non-contact and a second mode/ passive rotation/ contact, as described in cols. 6-8. A power supply applies a voltage bias to provide a necessary pressure (push) at least during the contact rotation. There is, inherently, some controlling device/ controller to control the brush rotation. There is only a specific component (developers) 208 among the plural components makes images, while the other components device do not make images.

Although Yasui discloses a controller to control the brushes' rotational operations, Yasui does not teach to count a number of rotations of the rotary brush.

Ota teaches to control (count) number of rotation of a charging member.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the controller, disclosed by Yasui, so as to make

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it also calculate the rotation rate (number of rotations per time unit), as taught by Ota, in order to adjust the brush for wear and preserve its life, as already suggested by Ota.

7. Claim 22 is finally rejected under 35 U.S.C. 103(a) as being unpatentable over Yasui and Ota as applied to claims 20, 26 above, and further in view of Hatakeyama.

Yasui and Ota disclose the device as stated above.

They do not explicitly teach the limitations of claim 22.

Hatakeyama discloses a device in the field of applicant's endeavor wherein a charge brush roller 2 is pushed in a rotary photosensitive body (image carrier 1 by push-in amount of 0.2 mm to 2 mm so as to secure a better charging property.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device, disclosed by Yasui and Ota, so as to have the amount of push-in, in the ranges suggested by Hatakeyama, so as to have the push-in and nip amounts corresponding to the diameter of the roller, so as to secure a better charging property.

8. Claims 23 are finally rejected under 35 U.S.C. 103(a) as being unpatentable over Yasui and Ota as applied to claims 20, 26 above, and further in view of Yano.

Yasui and Ota disclose the device as stated above.

They do not explicitly teach the limitations of claims 23.

Yano discloses a device in the field of applicant's endeavor wherein a nip between a charging brush 2 and a member 1 is 2 or 3 mm. Yano states that nip can be increased by increasing a peripheral speed difference.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device, disclosed by Yasui and Ota, so as to have the amount of nip in the range suggested and calculated by Yano, so as to achieve a desired charging amount and desired accuracy of charging, and thus, of an image.

9. Claims 20 and 25 are finally rejected under 35 U.S.C. 103(a) as being unpatentable over Shinohara in view of Ota and Yasui.

Shinohara discloses in Fig. 2 an image forming device comprising an intermediate transfer member (rotary member) 9, a rotary cleaning brush 39 which rubs and slides on a surface of the rotary member wherein, the rotary cleaning brush 39 is being controlled by a motor 41. In addition, the brush 39 is operated during a first/ active mode when it is spaced from the rotary member 9, and during a second (passive) mode when the brush 39 is bearing against the rotary member 9 and rolls with the rotary member (driven by rotary member) 9 (cols. 4-5). There is a mechanism for pushing the brush toward and spacing from the rotary member 9 (col. 5, line 14). This would imply that the mechanism pushes the brush in at some depth (amount of push) p. There is, inherently, some controlling device/ controller to control the brush rotation. There is only a specific component (developer) makes/ forms images, while the other components device do not make images.

Although Shinohara discloses a controller to control the brushes' rotational operations, Shinohara does not teach to count a number of rotations of the rotary brush, and a plurality of components, as stated in claim 20.

Ota teaches to control (count) number of rotation of a charging member.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the controller, disclosed by Shinohara, so as to make it also calculate the rotation rate (number of rotations per time unit), as taught by Ota, in order to adjust the brush for wear and preserve its life, as already suggested by Ota.

Yasui discloses in Fig. 1, 10 an image-forming device comprising a plurality of components each providing a developing device(s) 208, a rotary clean brush(s) 235 to rub and slide over (clean) a photosensitive image drum (rotary member/ image carrier) 206.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device, disclosed by Shinohara, so as to have a plurality components, as taught by Yasui, in order to make the device useful for providing a plurality of colors and images at the same time.

Allowable Subject Matter

10. Claim 21 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 17 is allowed.

Claim 17 is allowable because the prior art fail to teach a controller that executes the first mode before a cumulative number of rotations of the rotary brush in the second mode, as counted by the counter, exceeds a prescribed number of rotations, in combination with the remaining limitations of claim 17.

Claim 21 is allowable because the prior art fail to teach a controller that executes the first mode before the cumulative number of rotations of the rotary brushes of the plural components in the second mode exceeds a prescribed number of rotations, in combination with the remaining limitations of claim 20 which claim 21 is dependent on.

Response to Arguments

11. In view of arguments presented by applicant (October 16, 2006) the finality of the previous Office Action is hereby withdrawn.

Since the non-final rejection (06/16/2005) was proper, the consequent office actions, and thus, the present office action is made Final.

Applicant's arguments with respect to claims 1-16, 18-20, 22-26 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art cited in the PTO-892 and not mentioned above disclose related devices and methods.

Hayakawa et al. U.S. 5563691 disclose in Fig. 7 an image-forming device comprising a rotary member, a rotary cleaning member (brush) 21, an electric potential applying member 14.

Draugelis et al. U.S. 3841751 disclose in Fig. 1 a device comprising a plurality of developing devices 17-19 and a plurality of brushes 39-40 and a photosensitive element (rotary member) 13.

Ikunami et al. U.S. 5648840 disclose in Fig. 1 an image forming apparatus comprising an image forming body (rotary member) 1, a conductive brush is pressed against the rotary body during an active/ first mode.

Seanor (U.S. 4457615) discloses in Figs. 1-3 a device in the field of applicant's endeavor comprising two brushes being combined charging and cleaning brushes.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gail Verbitsky whose telephone number is 571/ 272-2253. The examiner can normally be reached on 7:30 to 4:00 ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on 571/ 272-2245. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GKV

Gail Verbitsky
Primary Patent Examiner, TC 2800



October 30, 2006